NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

UPLAND WILDLIFE HABITAT MANAGEMENT

(acre)
Code 645

Texas Supplement, Zone 2

WHITE-TAILED DEER

Habitat Requirements

Food

Deer require a high quality food supply that is usually made up of browse, mast and forbs. See Table 1 for a listing of important native deer food plants. Grasses normally make up only a minor part of the yearlong diet, however they may be seasonally important. Basic nutritional requirements for good body growth, reproduction and antler development are thought to be: 16% crude protein; 65% TDN; 0.3% phosphorus; and 0.6 % calcium in the diet. Nutritional requirements for maintenance are substantially less than this. Deer will consume about 3.5% of their body weight per day in forage on a dry weight basis. A 100 pound deer would therefore require nearly 1300 pounds of forage per year. One deer is normally considered to be about .15 animal unit or 7 deer per animal unit. Populations with larger than normal body weights and a high ratio of males to females may have a greater animal unit equivalent.

Cover

Deer need large parts of their range in protective cover, usually in the form of moderate to dense woody vegetation. Where woody cover is sparse, tall grass cover (3 feet tall) or rough topography may partially compensate. Prime deer habitat will usually have much more than half of the landscape covered by moderate to dense woody vegetation. Deer will occupy land with much less cover, but numbers will be considerably lower. Fawning cover consists of dense areas of tall grass usually mixed with low growing shrubs to provide concealment from predators. Mature bucks seem to have a need for larger areas of very dense cover as compared to younger bucks or does.

Water

Permanent water is considered a necessary component of deer habitat. Deer normally drink water daily, although at times, their water needs can be met with cactus or succulent vegetation.

Habitat Arrangement

Cover and food within habitat should be intermixed so that deer can forage in close proximity to protective cover. Deer will readily feed in open areas that are within 100 to 200 feet of woody cover. The more nutritional stress that deer are experiencing, the further from cover they will venture. Deer will sometimes travel a mile or more away from cover to feed, especially during drought, but they will do so primarily at night. Permanent water should be available close to cover and spaced no more than 1 to 1.5 miles apart, preferably closer.

Habitat Size

Individual deer normally range in areas of 500 to 1000 acres. Females have a smaller home range than males. Males have a much larger range during the breeding season (October – January). In general, large areas of habitat are needed to sustain viable populations that have surplus animals available for harvest. Smaller tracts of habitat will be used periodically as deer travel from tract to tract along corridors.

Habitat Management Techniques

Food

1. The ability of habitat to supply food for deer is accomplished primarily by keeping the number of deer in balance with the stable long-term carrying capacity of the habitat. Control of the population is achieved by hunting, especially of the female segment of

the herd. In some areas, natural predation will keep the deer population at or below carrying capacity. Excessive deer numbers result in overgrazing of choice food plants, degradation of habitat and smaller, nutritionally deficient deer. Field dressed weights of deer in each age class (1.5, 2.5, 3.5, etc.) will reflect the adequacy of the food supply and signify whether or not the population is within the carrying capacity of a particular habitat. A Relative Weight Index chart may be used to assess field dressed weights.

2. Examination of key perennial forbs and browse plants (Refer to Table 1) will also indicate whether deer numbers are in balance with the food supply. Light use on key forbs and browse would indicate a population that is below carrying capacity. Moderate use (no more than 50% of current years available production) would indicate a population that is at or near carrying capacity. Heavy use would indicate an overpopulation and the need to reduce deer numbers. Refer to practice standard for Prescribed Grazing for guidance on degree of use.

3. The deer food supply is also greatly affected by the kinds and numbers of livestock or exotic wildlife that occupy the same habitat. Goats, sheep and most exotics have food habits that overlap with deer diets. This overlap in food habits usually leads to competition for preferred food plants. This competition decreases the available food supply for deer. If the objective is to maximize the food supply for deer, reduction or elimination of goats, sheep and exotics is recommended. Evaluation of deer weights and examination of key food plants as described above will help determine if changes in kinds or numbers of livestock or exotics are needed.

4. Even though cattle are primarily grass eaters, forbs and browse often makes up 10 to 20% of their diet. Due to the large total forage requirement (estimated to be 26 pounds per day for 1000 pound cow), cattle can consume large amounts of forbs and browse and can compete with deer, especially in dry periods or winter when green grass is scarce.

5. Where deer habitat is also used for livestock grazing, providing regular rest periods from grazing will enhance the deer food supply. This is best accomplished with a systematic grazing rotation where livestock are grouped together and moved among two or more pastures. Generally, deer food plants are favored by shorter graze periods and longer rest periods.

6. Include desirable forbs or shrubs in range planting mixtures such as Engelmanndaisy, bushsunflower, Maximilian sunflower, Illinois bundleflower, alfalfa or fourwing saltbush. Refer to Table 1.

7. Protect mature mast producing trees such as oak, mesquite and pecan.

8. Utilize prescribed burning to improve the deer food supply:

   - Remove accumulations of old grass which inhibit forb growth.
   - Stimulate basal sprouting of browse plants.
   - Increase in nutritional value of forbs and browse (short term).
   - Stimulate the germination of certain browse and forb species.

9. Use mechanical renovation techniques such as roller chopping, chaining, or dragging to stimulate basal sprouting of woody plants and increase availability and production of browse.

10. Where overstory canopy is too dense to allow understory browse and forbs, create openings or thinning of canopy to stimulate the production of deer food.

11. Use selective control of less desirable woody species to enhance the production of more desirable species.

12. Use mechanical methods of brush management instead of chemical methods in order to minimize the damage to desirable forbs and browse and to stimulate forb production.

13. High fences are often used to enable closer management of deer herds. Where deer populations are excessive, high fences can be effectively used to reduce the deer

population within the fenced habitat. Special care must be taken to insure an adequate harvest of deer takes place each year within high fenced herds.

14. Where native food plants are not present in sufficient quantities to accomplish management objectives, food plots may be used. In regions where dryland farming is practiced, dryland food plots are feasible if suitable soils are present, the correct species are used and the level of management is sufficient. Exclusion of deer during establishment is sometimes needed for best success. Weed control, moisture conservation and adequate fertility are also needed for best results. The acreage of food plots in relation to the number of deer is an important consideration. Too few acres will insure that deer will concentrate on the plots, grazing them short before they are well established, thus providing only limited forage. A rule of thumb is to plant between .25 and .5 acres of food plots per deer in order to significantly increase the food supply. This usually amounts to 2 to 10% of the area in food plot production. There are three primary kinds of food plots used for deer.

    - Perennial food plots using perennial forbs or certain woody species do not require annual tillage and planting, but do require closer management. These species are slower to establish than annuals and they cannot tolerate continuous heavy use by deer or livestock. With proper management, they can provide large amounts of high quality forage all year long. See Table 2.
    - Cool season annual food plots are planted in late summer or early fall and provide forage for late fall, winter and early spring. They usually consist of one or more small grains often in combination with one or more legumes. See Table 2.
    - Warm season annual food plots are planted in spring and provide forage for late spring, summer and early fall. They usually consist of one or more legumes or other warm season forages. See Table 2.

15. Small fields or plots of small grain are often planted primarily to attract deer during the hunting season. These shooting plots are usually too small to provide substantial nutrition but are valuable in helping managers achieve the needed harvest, especially of females.

16. Fertilization of areas that contain key deer food plants is sometimes used to boost the production or quality of foliage or mast. This practice may increase the utilization on desirable plants to the point of excessive and detrimental use.

17. Supplemental feeding of deer is not normally considered a habitat management practice, but it is commonly used to enhance the quality of the deer diet. Protein and minerals, especially phosphorus, are the most commonly supplemented nutrients. Commonly used supplements include commercially produced pellets (16 - 24% crude protein), whole cottonseed, peas, soybeans, alfalfa pellets, alfalfa hay, and peanut hay. If deer numbers are kept within carrying capacity of the habitat, then the feeding of deer to boost their nutrition should have little or no adverse effect on the habitat. Without proper harvest, supplemental feeding will usually cause the deer population to increase above the natural carrying capacity of the habitat due to increased reproduction.

18. The feeding of corn is commonly practiced prior to and during the deer hunting season as a means to attract deer and increase the harvest. This practice is considered baiting and not supplemental feeding. It can be a valuable habitat management tool since it helps improve harvest efficiency which can help keep a population within carrying capacity.

Cover

1. Do all brush management in a pattern to retain woody cover interspersed between clearings. Patterns of openings within woody cover can be in the form of alternating strips, checkerboard blocks, random odd sized openings or contoured bands.

2. Key cover areas such as creek bottoms, draws, headers, canyons and saddles should be left intact.

3. Clearings should normally be 150 to 400 feet wide in order for deer to make good use of clearings. Smaller and/or narrower clearings provide better deer habitat. Conduct selective clearing where more desirable trees and shrubs are maintained within cleared areas.

4. Wooded areas left for cover should be wide enough to fully conceal deer from either side during the winter after leaves have fallen. Depending on the density of cover, this will often need to be 300 to 800 feet wide.

5. The percentage of an area that should be left in woody cover will vary depending on landowner objectives, the deer density desired, the method of clearing and the existing density and distribution of woody cover. Generally, clearing of 25% to 50% of the acreage will maintain good deer habitat if the remaining acreage has moderate to thick cover. Clearing at this level may cause some reduction in deer numbers. Clearing 50% to 75% of the acreage will generally result in a significant decrease in deer population.

6. Leave some large continuous tracts of moderate to dense woody cover to serve as sanctuaries for mature bucks.

7. Conservative grazing management that retains at least moderate amounts of taller grass maximizes fawning cover. If fawning cover is inadequate due to heavy grazing, a period of 1 to 3 years of rest will hasten the recovery of a desirable grass cover. Good fawning cover can decrease the impact of predation.

Water

1. Deer usually use water developments that were installed for livestock. When livestock are moved out of an area, be sure to keep water maintained.
2. Earthen depressions that catch overflow from livestock watering facilities are desirable for deer and other wildlife since succulent green forage will be present at the edge of the water.

3. Where traditional water development such as wells, pipelines, troughs or ponds are not feasible, water for deer can be provided with rainfall catchment and storage facilities known as guzzlers. Refer to practice standard for wildlife watering facility for guidance.

4. If a high fence is constructed which alters the availability of water, new water sources may need to be installed.

References

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Approval

/s/ Gary Valentine,
State Wildlife Biologist
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Table 1. Important Native and Naturalized* Deer Food Plants

High Value Browse	**Cool:** Mistletoe, Greenbriar **Warm:** Spanish oak, White honeysuckle, Hackberry, Elm, Texas sophora, Carolina buckthorn, Kidneywood, Mountain mahogany, Littleleaf lead tree, Texas mulberry, Rusty blackhaw, Possumhaw, Black cherry, Black willow
Medium Value Browse	**Cool:** Live oak, Evergreen sumac, Ephedra **Warm:** Shin oak, Post oak, Blackjack oak, Elbowbush, Bumelia, Wild plum Flameleaf sumac, Skunkbush sumac, Littleleaf sumac, Poison ivy, Lotebush, Western soapberry, Carolina snailseed, Roemer acacia, Grapevine, Redbud
Lower Value Browse	**Cool:** Ashe juniper, Redberry juniper, Pricklypear, Cenizo, Mountain laurel **Warm:** Mesquite, Persimmon, Algerita, Whitebrush, Green condalia, Colubrina, Javelinabush, Catclaw mimosa, Fragrant mimosa, Catclaw acacia, Pricklyash, Willow baccharis, Sycamore, Little walnut
Fruit and Mast High Seasonal Value	*Cool:* ***Acorns*** **Warm:** Mesquite beans, Persimmon, Pricklypear fruit, Grapes, Dewberry fruit, Yucca flower stalks, Lechuguilla flower stalks
High Value Perennial Forbs	**Cool:** Winecup, Primroses, Gaura, Penstemon, Engelmanndaisy, Heath aster, Spiderwort **Warm:** Dayflower, Bloodberry, Showy menodora, Bushsunflower, Illinois bundleflower, Velvet bundleflower, Prairie acacia, Hairy tubetongue, Texas nightshade, Gayfeather, Trailing ratany
Medium Value Perennial Forbs	**Cool:** Larkspur, Windflower anemone, Mexican sagewort, Wild onion **Warm:** Orange zexmenia, Maximilian sunflower, Western ragweed, Sida, Indian mallow, Globe mallow, Snoutbean, Dalea, Prairie clover, Low wild mercury, Perennial spurges, Evolvulus, Milkwort, Mentzelia, Ruellia
Lower Value Perennial Forbs	**Cool:** Prairie coneflower, Threadleaf groundsel, Tetreneuris, Horehound* **Warm:** Mealycup sage, Goldaster, Broom snakeweed, Frostweed, Silverleaf nightshade, Noseburn, Field ragweed, False ragweed, False nightshade, Queen's delight, Dutchman's britches, Verbena, Curlycup gumweed
Annual Forbs High Seasonal Value	**Cool:** Tallow weed, Filaree, Huisache daisy, Nuttall peavine, Milkvetch, Wild vetch, Indian blanket, Burclover*, Bluecurls, Wild carrot, Wild geranium **Warm:** Croton, Pigweed, Broomweed, Pellitory, Lambsquarter*, Russian thistle*, Kochia*
Grasses High Seasonal Value	**Cool:** Rescuegrass*, Ozarkgrass, Cedar sedge, Texas wintergrass

Cool: Provides green forage during at least a portion of the cool season but may also produce forage during the warm season.

Warm: Provides forage only during the warm season.

* Non-native species that have become naturalized.

Table 2. Planting Information for Commercially Available Seed Used for Food Plots or to Enhance Deer Food Supply

	Seed Rate Lbs/Acre [1]					
	Broadcast or Drilled	Rows [2]	Planting Dates	Planting Depth In.	Minimum Rainfall [3]	Comments
Perennials [4]						
Illinois bundleflower [5] (W)	13.6	NR	12/1 - 4/15	¼ - ½	20	
Bushsunflower (W)	2.6	NR	12/1 - 4/15	¼ - ½	16	
Maximilian sunflower (W)	3	NR	12/1 - 4/15	¼ - ½	20	shred to improve leafiness
Engelmanndaisy (C)	15	NR	9/1 - 2/28	¼ - ½	18	needs cold stratification
Alfalfa [5](CW)	4	NR	9/1 - 4/15	¼ - ½	20	short-lived (4 - 8 yr)
Fourwing saltbush (CW)	15.5	6	9/1 - 4/15	¼ - ½	10	evergreen shrub
Warm Season Annuals						
Lablab [5]	30	10	4/1 - 5/31	1-4"	18	Requires intensive mgt.
Cowpea [5]	15	5	4/1 - 5/31	1 - 2	20	usually dies midsummer
Mungbean [5]	15	5	4/1 - 5/31	1 - 2	20	
Guar [5]	30	10	4/1 - 5/31	1 - 2	18	
Grain sorghum [7]	12	4	4/1 - 5/31	1 - 2	18	seedheads eaten
Pigweed [6]	1.5	NR	4/1 - 5/31	¼ - ½	18	
Kochia [6]	1.5	NR	4/1 - 5/31	¼ - ½	12	shred to improve leafiness
Cool Season Annuals						
Wheat	60	20	9/1 - 11/30	1 - 2	18	more cold hardy
Oats	60	20	9/1 - 11/30	1 - 2	20	less cold hardy
Rye	60	20	9/1 - 11/30	1 - 2	20	
Triticale	60	20	9/1 - 11/30	1 - 2	18	
Ryegrass	4.6	NR	9/1 - 11/30	0 - ¼	24	can overseed
Yellow sweetclover [5]	3.4	NR	9/1 - 11/30	¼ - ½	16	biennial, "Madrid"
White sweetclover [5]	3.4	NR	9/1 - 11/30	¼ - ½	20	"Hubam"
Hairy vetch [5]	26	9	9/1 - 11/30	1 - 2	20	
Woodlypod vetch [5]	9	3	9/1 - 11/30	1 - 2	20	
Austrian winterpea [5]	18	6	9/1 - 11/30	1 - 2	20	extremely high palatability
Bur medic [5]	5	NR	9/1 - 11/30	¼ - ½	20	good reseeder
Button medic [5]	6	NR	9/1 - 11/30	¼ - ½	20	good reseeder
Turnips	3.5	NR	9/1 - 2/28	¼ - ½	24	leaves and turnips eaten
Tyfon (turnip cross)	3.5	NR	9/1 - 2/28	¼ - ½	24	may winterkill

Footnotes:
1 Seeding rates based on the use of PLS when available, otherwise, use good quality commercial seed.
2 Row planting (20 - 40 inch rows) should be used only when weed control will be carried out between rows. NR - Row planting not normally recommended
3 Approximate annual rainfall zone recommended for successful establishment. Irrigation recommended when planting west of this line.
4 (W) – warm season forage production (C) – cool season forage production
(CW) – provides some forage during both cool and warm season
5 All legumes should be inoculated with the proper strain of Rhizobium for best production.
6 These species are also important agricultural weeds and should not be used in farming areas.
7 White or yellow seeded varieties with lower tannin content are preferred.